

Math... Get The Facts!

Why is it so important that my child memorize math facts; isn't just learning them enough?

Math facts are considered declarative knowledge. They never change, and once understood, should not have to be rethought each time they are used. However, if one never moves this declarative knowledge into long term memory, the math facts have to remain in short term or working memory. This memory is limited to seven or less slots. Consequently, if a student is computing a two-step problem or a word problem, and must stop to figure out a math fact (e.g., count on fingers, count forward or backward), then the working memory for the entire problem is overloaded. The result appears as careless errors, skipped steps, or frustration that ends with, *"I just don't get it!"* This can be equated to when you go upstairs to get a bracelet, but after answering questions on the way or taking a phone call, you get to the top of the stairs and forget why you are there.

When a student commits math facts to long term memory, these facts no longer interrupt thinking, but can be called up as chunks of knowledge that are immediately usable. The problem-solving process can proceed uninterrupted, because math facts simply "slide" into place.

What is the best way to learn math facts?

Math facts must be over-learned. That means continuing to practice until responses are literally "mindless." The cue of the fact triggers an immediate response. This does not take place until long after the student can think of the right answer.

Once mastered, review is required. When you learned to ride a bike, it took a period of learning before riding became a "thoughtless" endeavor. If you do not ride a bike for years, it again takes cognitive effort, but then it again becomes automatic. Math facts are the same. Either they remain part of our "mindless" math solving or we "forget" them and have to relearn some.